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Claims:

1. A rotary knife comprising:

an annular blade having a central axis;

a blade support assembly supporting said blade for rotation about said axis;

5 a manually grippable handle assembly connected to said blade support assembly;

a drive transmission for driving said blade about said axis;

said handle assembly comprising:

10 a core having a first end region rigidly fixed with respect to said blade support assembly and a second end region spaced from said blade support assembly, said core defining a drive transmission guiding channel leading toward said blade;

a hand grip surrounding said core, said hand grip having a first end region proximal said blade support assembly and a second end region proximal said second core end region; and,

15 a connector for detachably securing said hand grip in fixed relationship with said core, said connector engaging said second end regions and detachable for enabling removal and replacement of said hand grip.

2. The knife claimed in claim 1 wherein said connector comprises at least part of a coupling mechanism for detachably securing said drive transmission to said handle assembly.

3. The knife claimed in claim 2 wherein said connector is threaded to one of said core or hand grip and bears on the other of said core or hand grip.

4. The knife claimed in claim 1 wherein said handle assembly has a longitudinal axis extending away from said blade support assembly and further comprising radial alignment structure for supporting said hand grip in one of a plurality of hand grip positions spaced angularly apart about said handle assembly longitudinal axis.

5. The knife claimed in claim 1 wherein said connector defines an opening aligned with said guiding channel.

6. The knife claimed in claim 1 wherein said drive transmission comprises a flex shaft assembly having a flexible rotatable drive shaft and a drive shaft housing assembly, said knife further comprising a latching mechanism for detachably connecting said flex shaft assembly to the knife.

7. The knife claimed in claim 1 wherein said hand grip comprises rigid tubular base member and a relatively soft resilient grippable section surrounding said base member.

8. A rotary knife comprising, an annular blade having a central axis, a blade supporting assembly supporting the blade for rotation about the axis, a manually grippable handle assembly connected to the blade support assembly, and a flex shaft drive transmission for driving the blade about the axis, said handle assembly comprising a core, a hand grip surrounding the core, and a connector unit that secures the hand grip to the core, said core rigidly fixed with respect to the blade support assembly and extending therefrom to a core end distal the support assembly, said core defining a drive transmission guiding channel leading toward the blade, said connector detachably securing the hand grip in fixed relationship with the core adjacent the distal core end.

9. The knife claimed in claim 8 wherein said core is a tubular member, said connector threaded to said distal core end for clamping said hand grip in place with respect to said core and support assembly.

10. A rotary knife comprising:

an annular blade having a central axis and an edge defined at one axial blade end;

a blade support assembly supporting said blade for rotation about said axis;

and,

a handle assembly connected to said blade support assembly;

said handle assembly comprising a manually grippable handle, and said blade support comprising a head member extending circumferentially partially about said blade and defining a radially inner peripheral portion and a radially outer portion, said handle projecting away from said radially outer portion;

said blade support assembly comprising an annular blade supporting member and a clamping assembly for securing said blade supporting member to said head member;

said clamping assembly comprising a clamp member and fasteners for securing said clamp member to said head member, said clamp member disposed along an inner periphery of said blade supporting member and said blade and confronting said head member with said blade supporting member interposed therebetween, said fasteners reacting against said radially outer portion to draw said clamp member into clamping engagement with said blade supporting member.

11. A housing for an annular power operated knife blade, the housing comprising:

a. an annular, split body defining a central axis and having a radially inner blade supporting section, a radially outer face extending circumferentially about the body, and a body mounting structure extending circumferentially partially about said body on opposite sides of the split in said body;

b. said body mounting structure defining first and second axially extending projections disposed on one side of the split in said body, and third and fourth axially extending projections disposed on the other side of said split, each projection extending axially from the blade supporting section to a distal end, each projection defining a radially outwardly facing circumferentially extending bearing face and a circumferentially extending radially outwardly opening groove extending between the

respective bearing face and said radially outer face, said projection bearing faces extending parallel to said radially outer face;

5           c. a first housing mounting slot defined between said first and second projections, said first mounting slot opening between the distal ends of said first and second projections and extending axially in said mounting structure to a location substantially adjacent said radially outer face;

10           d. a second housing mounting slot defined between said third and fourth projections, said second mounting slot opening between the distal ends of said third and fourth projections and extending axially in said mounting structure to a location substantially adjacent said radially outer face;

          e. said radially outer face defining a housing body bearing face extending circumferentially along said body mounting structure, said housing body bearing face spaced axially from said projection bearing faces with said groove disposed axially therebetween;

15           f. an inner bearing face extending circumferentially along the radially inner side of said body mounting structure, said inner bearing face located axially between said blade supporting section and said distal ends of said projections, said inner bearing face being axially narrow compared to the axial extent of either said housing body or said projecting bearing faces;

20           g. said inner bearing face constructed and arranged so that clamping force applied to said inner bearing face is transmitted radially and axially through the blade housing to the housing body bearing face and said projection bearing faces for securely clamping said blade housing in place.

12. The blade housing claimed in claim 11 mounted to a blade housing supporting head by a housing clamp assembly, said head comprising:

a) a plurality of circumferentially spaced clamp faces each circularly curved about said axis and engaging a respective projection bearing face;

b) a circumferentially extending clamp face circularly curved about said axis and engaging said housing body bearing face; and,

c) first and second sockets aligned with said first and second housing mounting slots.

13. The blade housing claimed in claim 12 wherein said clamp assembly comprises a clamp member and first and second connectors, said clamp member defining first and second circumferentially extending clamping faces engaging said inner bearing face and first and second bosses respectively extending through said first and second housing mounting slots and into said first and second sockets.

14. The blade housing claimed in claim 11 further comprising a tool engaging slot formed in said radially outer face, said tool engaging slot disposed circumferentially adjacent said housing body bearing face.

15. A rotary knife comprising:

a. an annular blade having a central axis and an edge at one axial end;

b. a blade support assembly;

c. a handle assembly connected to said blade support assembly;

d. a drive transmission for rotating said blade about said axis; and,

e. a steeling mechanism;

f. said steeling mechanism comprising a steel, a steel support that supports said steel for movement toward and away from engagement with said blade along a first line of action, and a manually shiftable steel actuator member supported for movement relative to said handle assembly along a second line of action that is neither parallel to, nor coextends with, said first line of action.

16. A rotary knife having an annular rotary blade, a blade supporting assembly, a handle, and a blade drive transmission for effecting blade rotation, said transmission comprising:

a. a flexible drive shaft unit extending to a location adjacent said blade;

b. a blade driving output member rotatable about an axis;

c. a drive coupling arrangement for transmitting drive from said drive shaft unit to said output member, said coupling arrangement comprising:

a drive transmitting surface fixed with respect to said output member and extending generally in the direction of said axis, at least a portion of said drive transmitting surface disposed on a radial line passing substantially through said axis;

a second drive transmitting surface drivingly connected to said drive shaft unit, said second drive transmitting surface engaging said first mentioned drive transmitting surface along at least part of its axial extent, said second drive transmitting surface having at least a portion thereof disposed on a radial line passing substantially through said axis when said first and second drive transmitting surfaces are engaged; one of said first and second drive transmitting surfaces biased away from engagement with the other; and,

a mechanism for overcoming the bias and maintaining said drive transmitting surfaces engaged.